

## TWO NEW SPECIES OF LIPOSCELIS (PSOCOPTERA, LIPOSCELIDIDAE) FROM CHINA

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**Abstract** Two new species, *Liposcelis capitsecta* sp. nov. and *Liposcelis badia* sp. nov. are described and illustrated based on the specimens collected from Sichuan and Hubei Provinces, China, respectively. *L. capitsecta* belongs to the group D and was initially collected in stored products, and *L. badia* belongs to the group A and is an out door species.

**Key words** Psocoptera, Liposcelididae, *Liposcelis*, new species, China.

The genus *Liposcelis* has a world wide distribution and contains at present about 120 species (Lienhard and Smithers, 2002; Li, 2002). Up to date, 24 species of the genus have been reported from China; however, one of them, *L. divinatoria*, has to be considered as a nomen dubium (Lienhard and Smithers, 2002; Li, 2002). We believe that there apparently are far more species occurring in China. Based on studies of specimens from the majority of Chinese provinces in 2004, two species, found in Sichuan Province and Hubei Province respectively, are described new to science. Holotypes and some paratypes are deposited in the Chongqing Key Laboratory of Entomology and Pest Control Engineering, Southwest University, Chongqing, China (CKLE) and some other paratypes are deposited in the Geneva Natural History Museum, Switzerland (MHNG).

For general terminology and standard abbreviations see Lienhard (1990, 1998). The following additional abbreviations are used here: BL= body length; WV= width of vertex.

### 1 *Liposcelis capitsecta* sp. nov. (Figs. 1-3, 7-11)

**Description** Female body color not uniform. Head dark brown; compound eyes black; antennae light brown; terminal segment of maxillary palpi pale. Prothorax yellowish to colorless; synthorax brown, somewhat lighter than head; legs medium brown. Abdomen medium brown (Fig. 1).

Sculpture of vertex and abdominal terga with weakly defined scale-like areas bearing distinct

tubercles and delimited by rows of tubercles (Figs. 2-3). Tubercles of medium size, slightly smaller than alveoli of small fine hairs on vertex and abdominal terga respectively.

Number of ommatidia 5-7 (mostly 5). Sensilla r and s on terminal segment of maxillary palpus long and slender, s slightly longer and stronger than r. Average distance between fine hairs on vertex 2-3 times their length.

Prosternal setae 4-7, mostly 5 or 6, one pair of lateral setae originating on posterior half, the others on anterior half of prosternum (Fig. 9). Humeral seta on pronotum (SI) short and very slightly longer than few fine hairs present on posterior part of lateral lobe of pronotum, no PNS differentiated (Fig. 8). Mesosternal setae 6-8, mostly 7 (Fig. 10).

Abdominal terga 3-7 each presenting an intersegmental membrane on posterior margin; terga 1 and 2 each divided into two transverse bands by hyaline membranous zones; anterior band of tergum 1 subdivided into one median and two lateral sclerotized plates, posterior band medially halved; transverse bands of tergum 2 sometimes medially halved. Terga 1 and 2 with one row of setae each, other abdominal terga with scattered setae, distance between them in general much exceeding their length (Fig. 3). Abdominal setae *Mv*10 and *Md*10 well-differentiated, *Mv*9 differentiated but shorter than *M*10; *M*8, *Md*9 and *D* not differentiated (sometimes *D* weakly differentiated); *Se* long and cylindrical (Fig. 11). The common trunk of gonapophyses distinctly bifurcate.

BL about 0.9 mm; WV (♀ holotype) = 0.23

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mm.

Male body color lighter than female and BL distinctly shorter. Abdominal apex as normal for male

*Liposcelis*. Ommatidia 4-5. Other characteristics same as in female.

Holotype ♀ (CKLE, slide No. 1127). Culture

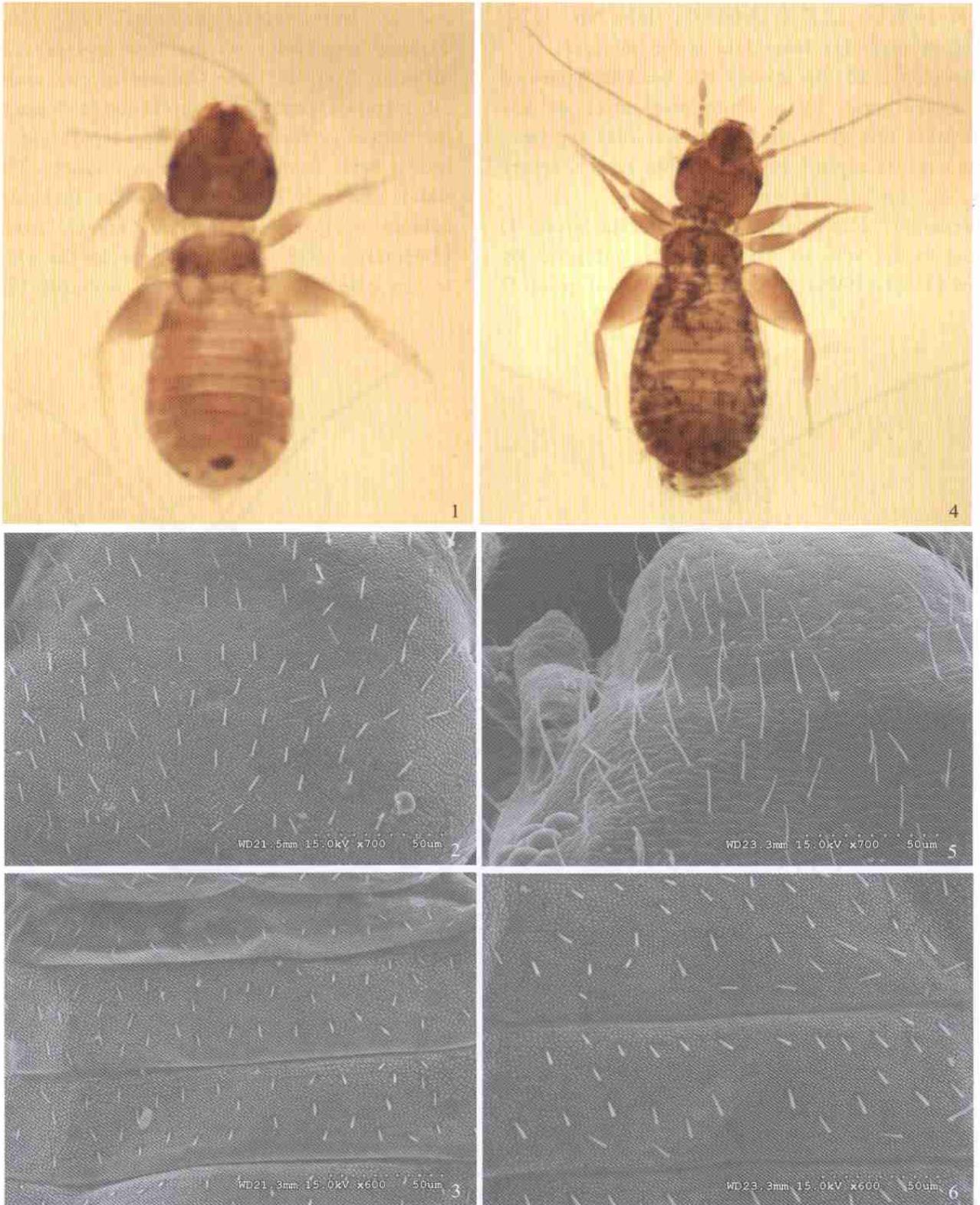


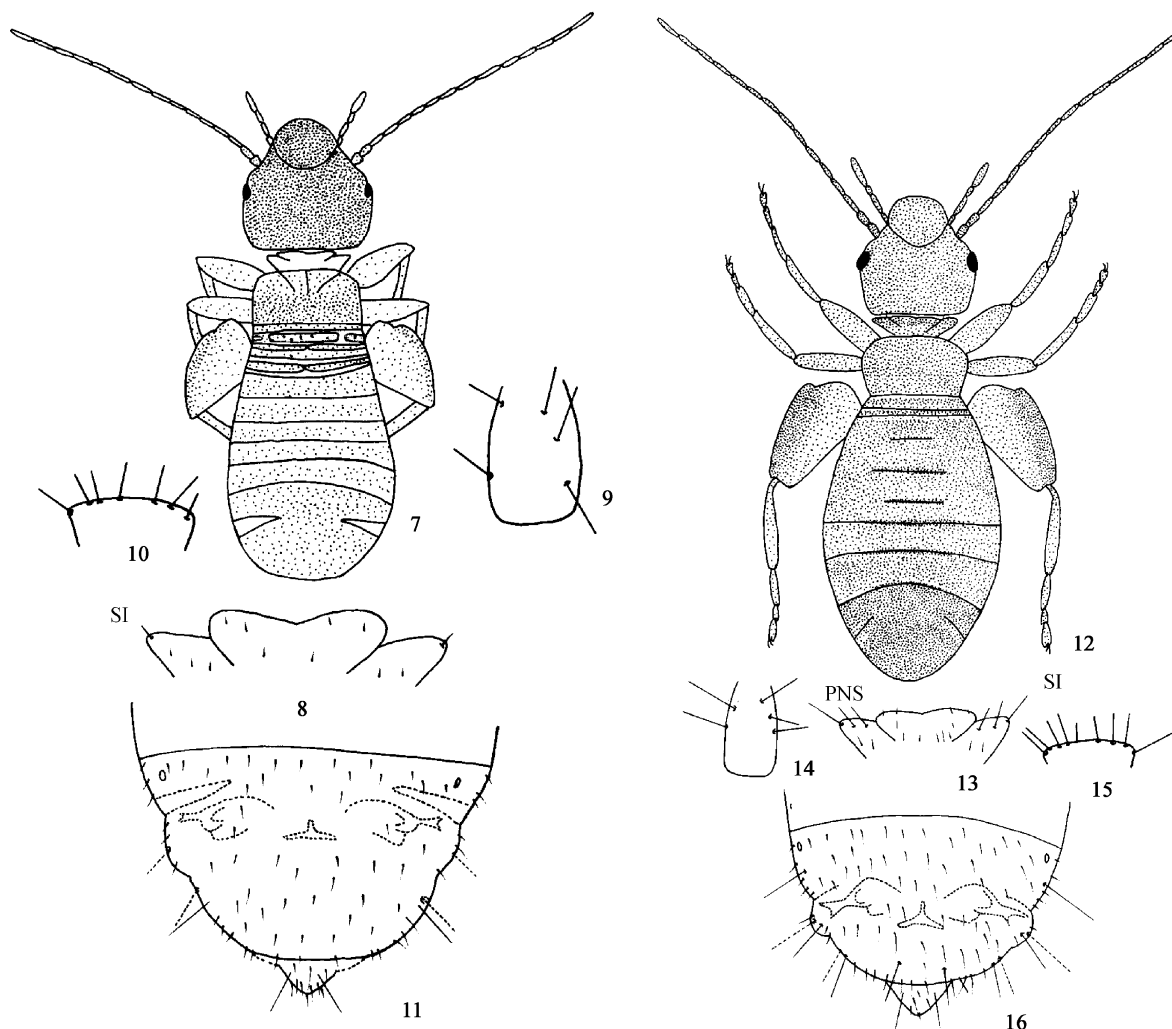
Fig 1\_6. *Liposcelis* spp., female dorsal view. 1\_3. *Liposcelis capitixecta* sp. nov. 1. Habitus. 2. Sculpture of vertex. 3. Sculpture of abdominal terga (1) \_2\_3\_4 (5). 4\_6. *Liposcelis badia* sp. nov. 4. Habitus. 5. Sculpture of postclypeus and anterior part of head capsule. 6. Sculpture of abdominal terga 3\_4\_ (5).

based on sample from stored products in human habitation, Chengdu ( $30^{\circ} 6' N$ ,  $104^{\circ} 1' E$ ), Sichuan Province, 1 Aug. 2004, coll. by LIU Guo-Ying. Paratypes: 6 ♀♀, 4 ♂♂ (CKLE, slides No. 1128-1137) and 3 ♀♀ (used for SEM); same data as for holotype. 16 ♀♀, 12 ♂♂ (MHNG, slides No. 7679-7680 and in alcohol); same data as for holotype.

**Etymology.** In this species the head is separated from the synthorax by a white prothorax; at low magnification this gives the impression that the head has been cut off: caput (-itis) [Latin for head], secare (sectus, -a, -um) [Latin for cut off].

**Discussion.** This species belongs to the group D according to the keys to species groups published by Lienhard (1990, 1998). Five other species of group D

have been recorded from China: *L. paeta* Pearman, *L. sculptilimacula* Li and Li [the incorrect subsequent spellings of the species name, *sculptilis* and *sculptimacula*, have been emended by Lienhard (2003)], *L. yangi* Li and Li, *L. edaphica* Lienhard and *L. bostrychophila* Badonnel (Li, 2002). The striking body color of the new species is distinctly different from all these Chinese species and from all other known species of group D and is characterized by the almost colorless prothorax separating the dark brown head from the brown synthorax. The species stands relatively close to *L. tricolor* Badonnel, which belongs to group D too and known from Europe (Lienhard, 1998), but in this species the whole thorax is very pale (cf. plate 8a, b in Lienhard, 1998).



Figs 7-16. *Liposcelis* spp., female chaetotaxy. 7-11. *Liposcelis capitisecta* sp. nov. 7. Habitus. 8. Pronotum. 9. Prosternum. 10. Mesosternum. 11. Terminal abdominal segments (dorsal view). 12-16. *Liposcelis badia* sp. nov., idem.

## 2 *Liposcelis badia* sp. nov. (Figs. 4-6, 11-16)

**Description.** Female body color uniform, dark brown. Compound eyes black; antennae brown;

terminal segment of maxillary palpi somewhat lighter brown; legs brown (Fig. 4).

Vertex with scale-like areas delimited by ridges and usually bearing some small tubercles; tubercles sometimes not very distinct, best visible on lateral parts of the head capsule (Fig. 5). Abdominal terga (Fig. 6) regularly covered with distinct small tubercles, their diameter about half of the diameter of the alveoli of the small fine tergal hairs; arrangement of tubercles in spindle-shaped areas weakly visible on terga 3-7, more distinct on terminal terga.

Number of ommatidia 7-8 (mostly 8). Sensilla *r* and *s* on terminal segment of maxillary palpus long and slender. Average distance between fine hairs on vertex shorter than length of these hairs.

Prosternal setae 4-6, arranged in an arc (Fig. 14). Humeral seta on pronotum (*SI*) long and strong, several times longer than the 2-3 small hairs on the posterior part of the lateral lobe of pronotum, this lobe with 2-3 well-differentiated *PNS* on its anterior margin (Fig. 13). Mesosternal setae 8-9 (Fig. 15).

Abdominal terga 3 and 4 lacking posterior delimitation by intersegmental membranes, a very narrow hyaline patch of membrane usually visible in lateral view. Terga 1 and 2 each subdivided into two transverse bands by hyaline membranous zones, these transverse bands sometimes more or less halved medially. First tergum with one row of setae, second tergum with two rows of setae, other abdominal terga with scattered setae, distance between setae in general much exceeding their length (Fig. 6). The following characteristic setae are differentiated on abdominal apex (Fig. 16): *M*8, *Mv*9, *Md*9, *Mv*10, *Md*10, *D*. In general *Mv*9 slightly longer than *Md*9 and *Md*10 slightly longer than *Mv*10. *Se* straight and cylindrical. The T-shaped internal sclerite of the subgenital plate dark brown, well-differentiated. The common trunk of gonapophyses distinctly bifurcate.

BL about 1.2 mm; WV (♀ holotype) = 0.29 mm.

Male body color lighter than female and BL distinctly shorter. Ommatidia 4-5. *PNS* 2-3. Abdominal terga 1 and 2 with one row of setae respectively, terga 3-7 with two rows of setae. Abdominal apex as normal for male *Liposcelis*. Other characteristics same as in female.

Holotype ♀ (CKLE, slide No. 1138). Culture

based on sample from vegetation near Zhongxiang (30°4' N, 114°2' E), Hubei Province, 23 July 2004, coll. by DOU Wei. Paratypes: 5 ♀♀, 4 ♂♂ (CKLE, slides no. 1139-1147) and 4 ♀♀, 1 ♂♂ (used for SEM); same data as for holotype. 17 ♀♀, 8 ♂♂ (MHNG, slides No. 7681-7682 and in alcohol); same data as for holotype.

**Etymology.** The species is entirely brown, lacking striking color pattern: *badius* (-a, -um) [Latin for brown].

**Discussion.** This species belongs to the group A according to the keys to species groups by Lienhard (1990, 1998). The following 12 species of group A have been reported from China up to now (Li, 2002): *L. brunnea* Motschulsky, *L. sinica* Li and Li, *L. ruficornata* Li and Li, *L. nigriritibia* Li and Li, *L. laoshanensis* Li and Li, *L. entomophila* (Enderlein), *L. cibaritica* Li and Li, *L. pallens* Badonnel, *L. yunnaniensis* Li and Li, *L. naturalis* Li and Li [correct original spelling selected by Lienhard (2003)], *L. antennatoides* Li and Li and *L. jilinica* Li and Li. In females, the new species differs from the other Chinese species of the group A as follows: *L. brunnea*, *L. sinica* and *L. ruficornata* have 1 *PNS* only, in addition, the *Se* of *L. brunnea* is not only curved but also long and acuminate-tipped. *L. nigriritibia* and *L. laoshanensis* have 4 *PNS*, while the new species has 2-3 *PNS*. *L. entomophila* and *L. cibaritica* have an abdomen with distinct transverse brown stripes, while it is uniformly brown in the new species. In *L. pallens*, *L. yunnaniensis*, *L. naturalis*, *L. antennatoides* and *L. jilinica* the abdominal terga 3-7 bear two rows of setae, while the new species has scattered setae on terga 3-7.

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中国虱啮属昆虫两新种记述（啮目，虱啮科）

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摘 要 记述并描绘了中国虱啮属昆虫两新种：离首虱啮 *Liposcelis capitisecta* sp. nov. 和褐虱啮 *Liposcelis badia* sp. nov.。离首虱啮采集于四川成都一农户家的粮柜内，隶属于 D 组，其前胸颜色较浅，肉眼或在低倍镜下观察头部与身躯

似乎分离。褐虱啮采自湖北省钟祥市野外，根据其特征划分为 A 组，其个体较大，躯体颜色较深，体表毛较密集。其与暗褐虱啮 *L. brunnea* Motschulsky 的区别是：*PNS* 毛有 2~ 3 根；*Se* 毛圆筒形，不弯曲。

关键词 啮目，虱啮科，虱啮属，新种，中国.

中图分类号 Q969. 31